

**Exercise 1** Suppose that  $r = f(t)$  is the radius, in centimeters, of a circle at time  $t$  minutes, and  $A(r)$  is the area, in square centimeters, of a circle of radius  $r$  centimeters.

Which of the following statements best explains the meaning of the composite function  $(A(f(t)))$ ?

**Multiple Choice:**

- (a) The area of a circle, in square centimeters, of radius  $r$  centimeters.
- (b) The area of a circle, in square centimeters, at time  $t$  minutes. ✓
- (c) The radius of a circle, in centimeters, at time  $t$  minutes.
- (d) The function  $f$  of the minutes and the area.
- (e) None of these choices.

Suppose that  $r = f(t) = t^3$ . Recall that  $A(r) = \pi r^2$ . Find  $A(f(t)) = \boxed{\pi r^6}$ .

---